

White Paper Report

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Project Director: Robert Squillace (rs84@nyu.edu)

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Making the Ephemeral Virtual: Portfolios, Student Agency, and Collaborative Learning¹

Lucy Appert • Robert Squillace

I. Agency: The Liberal Studies Educational Philosophy

A key dictum in liberal arts education is interrogating the relationship between the form and content, understanding how cultural forces affect expression. As much as this dictum is a valid form of investigation for the writing of novels or the painting of portraits, so it is for teaching about these practices. It should be no surprise, then, that our liberal arts program's effort to design an appropriate form (ie, electronic portfolio) for students' artifacts amassed during their four years with us became a larger search for a better way of expressing the continuum between research and teaching technologies in academia.

We have been uniquely positioned to observe the ways pedagogical form and content constitute each other. The Liberal Studies Program (LSP) at New York University is home to two undergraduate tracks, a two-year interdisciplinary liberal arts core program and a four-year Bachelor of Arts in Global Liberal Studies. While the bulk of our 2000 students and more than 100 faculty members are based in New York, we educate approximately 300 students each semester at NYU's international sites, including Florence, London, Paris, Buenos Aires, Berlin, and Shanghai. In the humanities tradition of academic inquiry, our program features small classes in a seminar/discussion format geared toward producing active learners. Through our interdisciplinary curriculum and study abroad options, we encourage students to make connections and form community across NYU's widely varied schools and geographic locations based on their growing sense of intellectual agency. Putting teaching first, we strive to create the atmosphere of a close-knit liberal arts college in the context of a major research University.

Just as our curriculum encourages students to explore, connect, and personalize the material they cover, we wanted the technology used in connection with it to support and expand those activities. Thus, our project began as an effort to make the ephemeral virtual; that is, to find a way to manifest the distinctive but elusive elements of a liberal arts education – the exciting discussions, the mental “A-ha!” moments, the ideas and cultural artifacts seen suddenly with fresh eyes, to name just a few – and render them into a material, archivable form. Central to this effort to extend our promotion of

¹ Dedicated with fond appreciation to Barbra Mack, whose vision informed and continues to inform our work.

student agency through technology was a portfolio tool, which would facilitate the gathering, organizing, and reusing of materials from a wide range of academic and co-curricular activities.

Our vision in this area was partially influenced by the exciting experiences of many faculty members with learning management system (LMS) course shells, which had helped them realize a complete, customized vision of their courses. LMS course shells gave instructors a central space for organizing and making accessible to their students all of the readings, images, links, and videos that had informed their thinking about the course, while the electronic format allowed them to add to or alter this material as often as necessary to keep it current. Moreover, once they had created the perfect mix, they could copy the material into new course sites. In addition, the LMS took care of housekeeping needs like efficient group emailing and communicating grades to students through gradebook.

But what was the LMS offering for students? Faculty found that interactive features like discussion forums and group pages helped them to extend the classroom space and continue discussions with their students between class meetings. They also liked the fact that students could use these tools to share and comment on one another's work, and that student contributions to course shells provided their instructors with hard data for generating those fuzzy but significant course grade components known by names like "Class Participation." However, instructors also recognized that, as hard as they might try to make their LMS course shells participatory, students still viewed them as learning transaction spaces rather than community gathering spots. Students usually responded to the discussion board prompt in the same way they would respond to an essay assignment, by direct address to the instructor; they had to be prodded to respond to one another's posts. Moreover, their own expectations about what instructors would put in an educational space, such as lecture notes and slides geared to tests and assignments, were also transactional in nature. These presuppositions about what belonged in a course site revealed that students saw the material their professors were sharing with them as being important only in the context of helping them achieve higher grades in a particular course and not as the foundation of a personal intellectual archive.

At the simplest level, then, we realized that a key aim of our project had to be shifting the student understanding of instructional technology from a transactional space that facilitated a vision of learning as repeating instructor-controlled information for tests and assignments (often promptly forgetting it at the end of the course), to a discovery and meaning-making space that more closely resembled the ways their professors were using LMS shells. We realized that the best way to help students to make this connection was to situate their portfolio tool within the same online environment as the LMS and to facilitate the sharing and re-use of material across course shells and the portfolio.

But helping students view instructional technology as providing a space in which they had a voice and agency also meant we needed to expand the capacity of the technology itself, from the information exchange and assessment focus of the standard LMS into a collaborative networking tool in which these features were just a few of many functionalities students used. We needed a system that allowed for sites and user identities beyond strictly hierarchical teacher/student definitions, where users had a way to represent themselves in terms of their intellectual interests, to search for others with similar interests, and to collaborate with them.

From our conversations with students, we knew that they were also looking for a means of transforming their purely social networking skills (developed on sites like My Space and Facebook) into professional networking skills. They were genuinely excited by the idea of an academic networking space where they could look at professors' profile pages as models and practice gathering information and forming connections based on their emerging intellectual identities. Perhaps most encouraging was their genuine desire to make what they were learning in courses meaningful and relevant by having a space in which they could store and combine artifacts from it (readings, image groups, notes) with materials from their travel, work, and co-curricular experiences. The freshman who brought a baggie of flash drives to one of our focus group meetings and announced, "This is my freshman year – all the readings, links, images, and papers that were important to me. I don't know what to do with it but I want to keep it!" was perhaps more organized than her peers, but certainly not unique in her desire to make what she was learning her own.

Interestingly, then, we found that the Web 2.0 emphasis on collaborating and connecting was essential to our portfolio's mission to promote individuality and student agency. For our students, who are at an age where self-fashioning relies heavily upon comparison with reference points outside of themselves, self-knowledge actually begins by understanding how they are perceived by many kinds of people in many kinds of situations. The relationship between the two was in fact much like that between research and teaching in the liberal arts – one was solitary and the other was group-oriented, yet both were integral to developing better understanding of the material. And given the dynamic nature of the material in question – students' emerging portraits of their intellectual development – we understood that whatever form we developed (a network, a portfolio, a process) must be a structure in which enormous fluidity was possible as well.

II: Defining the Problem: Existing Models of Collaborative Learning and Their Discontents

Although it ultimately became a project that reconciled the best features of the Web 1.0 and Web 2.0 worlds, our effort to combine a portfolio and networking tool began

with an attempt to work with what already existed. Our program's experiments with instructional technology had begun in the 2004-05 academic year with the creation a common site in our LMS through which instructors and students could share texts, links, image groups, and background materials related to our interdisciplinary curriculum. We ran into trouble almost immediately because our LMS, Blackboard, was simply not built for sharing. The course site metaphor that worked well when the requirement was automatically to put everyone who registered for a course into the appropriate course shell completely broke down when we tried to scale it up to create an organizational site for more than 100 faculty members and 2000 students. Since there was no mechanism for users to join themselves to sites via an invitation link, we were faced with manually entering all users into the site.

However, because Blackboard only allowed users a handful of roles (instructor, student, teaching assistant) and offered no controls on who could see data, we ended up having to create two sites, one for students and one for faculty members. We spent an enormous amount of energy making the site for students as visually attractive and easy to navigate as possible, but the technology had been conceived so narrowly for information posting and retrieval that it was almost impossible to create a navigable space remotely comparable to those students encountered on the internet, let alone facilitate even the most modest networking. On the site for the distribution and sharing of scholarly and pedagogical resources for faculty, we spent more time organizing the material into folder structures than worrying about visual appeal, thinking that highly-articulated taxonomies would make intuitive sense to them and encourage use of the site.

Looking back, it's easy to see why our faculty did not engage with this site. The folder structure was dense and organized by its creators' logic; though we included pages for discussion and sharing, one had to navigate away from the content pages to reach them. Moreover, one could only leave comments in forums that we, the administrators, had created. No wonder our faculty did not want to hang around sharing materials and talking to one another in such a claustrophobic space. They were feeling for the first time what their students felt in LMS course shells – that the space really belonged to the all-powerful administrators who put people in, organized the material, and decided who could see what. This experience gave us our first sense of how important the “management” part was in LMS – this was a technology that sent the message that education was about hierarchy and control, the outcome of a panoptic pedagogy.

What proved more successful for these purposes was a wiki that we initially created to help a group of faculty members discuss guidelines for the implementation of a new, globally focused curriculum. The whole curricular area soon took possession of the space, sharing files and links, organizing materials as a group and linking to them, and holding spontaneous conversations that have stretched over months. Although the

new curriculum has been in place for more than a year, faculty members continue to add resources to the site and to engage in discussions on it. What seems to make the difference is that in the wiki, everyone is a collaborator and no one owns the structure or dictates content to be included. Faculty participate because they have a personal interest in doing so.²

Our portfolio idea shared the values of these earlier initiatives in that we wanted to create a storehouse of items that could be reused (and the new materials made from them in turn archived), organized according to the owner's personal taxonomy, and attached in some way to a public networking page through which users could form community based on their intellectual interests. However, in spite of being advertised as "student centered," we found that most portfolio tools were just as hierarchical and alienating as LMS shells.

To begin with, the portfolios were almost all certification-driven, with very rigid structures that met the needs of the administrative bodies assessing the portfolios but offered the student no way to filter or tailor the material for presentation to different audiences. These first-generation eportfolios were also conceived as warehouses for completed work organized by the assessing bodies' criteria – often a set of rubrics heavy on educational jargon to which students could only remotely relate. These tools promoted active student learning in the sense that students had to do more than repeat back information on tests or assignments, but since the organization and prompts were not self-directed, they ultimately produced activity without agency.

What particularly disturbed us about the eportfolios we looked at was the way they imposed a single learning sequence on every student. Most were based on a matrix structure that opened new assignment categories for students only after previous ones had been filled, the portfolio equivalent of the LMS "adaptive release" tool. The underlying message to students was that there is only one path to mastery of any given concept. The message of our interdisciplinary liberal arts curriculum, however, is precisely the opposite. We work to help students to see that there are multiple, equally valid entry points to any topic.

Furthermore, we found that eportfolios' emphasis on highly structured and automated processes actually undermined the messages about process we were trying to teach in areas such as writing. Many of our writing faculty use a portfolio method for teaching and assessing student writing, and progressive assignment sequences usually play some role in that structure. While these sequences may suggest a linear writing process to students, instructors also teach drafting and revision strategies that involve revisiting and rethinking previous assignments, thereby disrupting linearity.

² For a more detailed discussion of these ideas, see *Here Comes Everybody: The Power of Organizing without Organizations*, Clay Shirky (New York: Penguin, 2008).

For example, writers often discover what it is they want to argue through the process of working toward it in a first draft; thus, one tried and true revision strategy for arguments that lack focus is to take the concluding paragraph and place it at the beginning. As translated into electronic form, however, portfolios lost this capacity for conveying learning as a nuanced and complex process and instead focused only on the process part.

Ultimately, we rejected existing portfolio tools such as Sakai's Open Source Portfolio (OSP) because their hierarchically defined technology sent students the same alienating message as LMS: the portfolios belonged not to them but to the administrators, who set the terms and processes by which they were created. To learn was to follow instructions well.

Partially because of our disappointing experiences with these LMS-based projects, our program had also begun to experiment with Web 2.0 tools (such as the wiki that a portion of our faculty used to work on the new curriculum guidelines). These tools' emphasis on collaboration and sharing was perfect for the network portion of our project, as attested by the wild popularity of course shells created in Ning (a formerly free web-based software for hosting closed social networks) by some professors in our program who were frustrated by LMS constraints. Ning shells offered a selection of different tools – discussion board, blog, easy-to-post photo and video albums, and a personal page for each student – that instructors could customize according to their needs.

What students liked about Ning, however, was its flatness. They were free to move within the site, post content, create groups and form connections with one another, and customize their personal pages, all without intervention or permission from the instructor. In early experiments with using Ning shells for courses, we asked instructors to “turn on” features they were not going to use for assignments and see what would happen. In every type of course, from science to writing, we found students exploring and engaging in Ning shells in ways they never would have in standard LMS course sites. Some would change the color scheme of their personal page daily, others pulled in third party widgets such as “friend maps” that placed their classmates in their hometowns, and many formed connections by “friending” one another and posting comments on one another's personal pages.

But their actions went beyond the purely social. Given the opportunity to post content as freely as their professors could, they began to share with their peers the kinds of things – links to articles, images, videos, and websites related to course topics that they came across outside of class, for example – they would normally just share with the professor. Moreover, students were quick to engage with one another's contributions, making frequent use of the “Comment” feature that is ubiquitous in Ning tools as it is in all social networking sites. Behavior that would have needed to be

spelled out in an assignment in a standard LMS shell (“Find one video on the subject of global warming and post it to our course site. Make sure you comment on at least two of the videos your peers post”) was happening organically in a social-networking-style shell. Perhaps most impressively, students were keeping these interactions intellectual in nature and saving the purely social networking behavior for the purely social networking sites.

Interestingly, one of the most “social” features of social networking - recording all of an individual’s activity in a network site and providing links to it from the student’s personal page - became one of the most pedagogically useful for instructors looking for insight into students’ level of engagement in a course. By checking a student’s personal page, for example, an instructor could not only see how many blog entries or discussion replies a student had posted, but navigate directly to them to gauge their quality. If a student had been forming connections with peers or bringing in third-party widgets, that information was recorded as well. In terms of evaluative practices, this offered precisely the opposite approach to “Adaptive Release” in LMS shells, but gave more accurate information by capturing the broader spectrum of student engagement with the course material that went beyond the scope of assigned responses to a single assignment sequence.

The message to students from the set of live links on their personal page to their contributions throughout the course site was that none of their contributions were buried or forgotten deep in an LMS folder into which no one would ever venture again. However, the fact that Ning shells were not connected to a bigger network meant that, when the class was over, the work would remain in the shell and the student would move on. This point was driven home to us when Ning announced in April 2010 that it would go to a fee-only service and phase out the free shells faculty had been using for course sites (as well as all that exciting student data). We had two important takeaways from this experience. First, without a larger network into which they fit, the social networking site course shells turned out to be data cul-de-sacs in much the same way as standard LMS shells were. The flatter structure empowered students and made their work more visible within the confines of the course site, but there was no way to connect that effort with other academic and extracurricular work they were doing.

The second, related takeaway was the reality that these kinds of sites created a lot of student data of which it was neither possible nor necessary for instructors to evaluate each piece. Rather, we recognized that new forms of assessment would need to emerge to take advantage of this potential. For the purposes of our portfolio project, however, it was clear that students should be able to pull what they believed to be their most significant contributions to course sites into their personal archive.

When we stepped back to see what the larger connotations of the Web 2.0 tools were for students, we realized that their emphasis on flatness and total equality among users

could be as potentially misleading as the hierarchy and control message of LMS technology. Tagging replaced folders as the method of organizing, filtering, and presenting data in these environments, but as a newer form of information management, tagging was still poorly understood and (under-)used by students and faculty. Without conventions to guide them (one advantage of folder structures is that everyone understands them, having handled them in the physical world), faculty and students in these sites often found themselves with precisely the same needs as the student who had archived her freshman year in a baggie full of flashdrives: a means of organizing and hierarchizing the material to make sense of it.

As we compared our experiences with Web 2.0 and Web 1.0 tools, we realized neither group held the complete set of answers for us. In the Web 2.0 experiences, we saw than an over-emphasis on discussion and user-contributed content such as images and videos had the potential to render disciplinary conventions and expertise invisible. (Think of the “Comments” sections on popular news websites where all remarks are given equal status and critical input is limited to deploying a “Thumbs up” or “Thumbs down” icon.) And in Web 1.0 experiences, we saw that while promoting student agency would require providing a means of inserting hierarchies of information, these would only be meaningful if they were personally generated or, if they were externally imposed (through forced tagging, say), if students had some means of internalizing them through personal connections.

III: Solutions: Product and Process

Product: The Pilot Version of Simonides

Between Two Worlds

As our vision developed, it became evident to us that we needed to steer a middle course between the Scylla of an LMS (like Blackboard) that constricted the modes by which learning could occur and the Charybdis of an unrestricted Web 2.0 environment in which the lack of defined conversational roles made thoughtful and informed discussion impossible amid the white noise of social chat. We needed to take care that online educational space did not repeat the paradigms of education we had already rejected in the physical classroom: unrestricted lecture on the one hand and undirected discussion on the other. Lecture format conceives the student as a passive vessel for the receipt of the instructor's superior knowledge, paying little regard to the central tenet of liberal education, which is that learning transforms the learner in deep and individual ways. The structures of a traditional LMS – even of earlier generations of Sakai – derive from this model of education. Studies have repeatedly suggested, however, that “active learning approaches provide a learning advantage over passive approaches of about .25 of a standard deviation (10 percentile points).”³

On the other hand, the promised freedom of Web 2.0 mimics the loosest of workshop settings, whereby any voice may address any topic as the mood strikes, with no one authorized to define goals and measure progress toward them. Simonides offers enough shape to make exchange (of ideas, images, videos, comment, formal and informal writing, etc.) between and among students and instructors meaningful without restricting its flow to a single direction. It extends active learning from the physical space of the classroom to the virtual space of the Sakai system.

We further realized in the course of our first year's design, implementation, and pilot that we must neither let the capacities of the available technology dictate pedagogical practice – teaching to the tool makes the focal point the tool rather than the intellectual issue at stake – nor reify and valorize current teaching practices by developing a system that merely facilitated online precisely the same teaching methods that had served a pre-digital world. If the history of technology demonstrates anything, it is that changes in the way information is disseminated change the social structures,

³ *How College Affects Students: Volume Two, A Third Decade of Research*, Pascarella and Terenzini (San Francisco: Wiley-Bass, 2005), 102. See “Anti-Lecture: A Strategy for Creating Discussion-Based Courses,” David Yaname, 2004 (<http://www.nd.edu/~kaneb/programs/sotl/yamane-report.pdf>).

intellectual practices and philosophical ambitions of the cultures in which that information circulates.⁴

This conviction called for a particularly creative process of gathering user requirements. At the start of our project, we assumed that asking faculty what tools they used or wanted to use, what sort of assignments they gave or wanted to give, and other such questions about discrete and separable practices would suffice. We learned, however, that this analytical approach kept us from seeing the bigger picture: the goal of instilling student agency, of creating both the taste and capacity for self-directed learning, which is the synthesis that all the individual tools and assignments are meant to serve. We consequently formed a committee that included both faculty and students to discuss the ways an LMS could best serve the larger goals of liberal arts education. We ultimately determined that what was called for was not a replacement LMS at all – indeed, one of the universal complaints of students about the Blackboard LMS was their lack of ownership over it, all their work essentially disappearing at the end of the semester – but a collaborative learning environment that integrated formerly separate elements: a portfolio space, an academic networking page, and multi-media content-authoring capacities.

An Integrative Approach

Higher education does not occur only during a student's hours in the classroom (which are relatively few), but outside and across classes. Moreover, all learning occurs in dialogue with past learning; on the first day of every semester, a student brings considerable past experience with him or her, so that no instructor ever faces a blank slate. Even if a student has little or no background in the subject of a particular course, he or she brings years of expectations on how classes ought to be conducted and what constitutes learning into the first session of every course. Because of the impossibility of preserving and transmitting a student's work from semester to semester, year to year, the convention in undergraduate education has been to treat each course as a discrete entity in which student learning is assessed by and for itself.

Indeed, the structure of American higher education as it developed in the 20th century bears a disconcerting resemblance to the assembly line system: courses taught in isolation from each other by specialists in one particular educational task meet on a strict time-schedule to concentrate on narrowly-defined subject areas, which are themselves grouped into disciplinary areas methodologically and often physically separated from each other. Art, music, drama, philosophy, politics – all are taught apart

⁴ The classic example is the influence of the introduction of printing with moveable type in Europe on the Reformation. At the same time, social structures profoundly influence the direction of science; see the *Encyclopedia of Science, Technology, and Society*, ed. Rudi Volti (New York: Routledge, 2004).

from each other, though all form interlocking elements in the human cultural experience, while less portable media like dance and speech-making are pushed to the curricular margins when they are not omitted altogether. The college experience first became a familiar part of the American cultural landscape in the 1920s, when enrollments rose by 84%⁵ and songs and films celebrating the collegian become commonplace; during the same years, Henry Ford published his autobiography (*My Life and Work*, 1922) and his most influential management treatise (*Today and Tomorrow*, 1926). Sir Ken Robinson, looking from an English perspective, locates the assembly line tendencies of education even earlier, arguing that they "came into being to serve the needs of industrialism" in the 19th century.⁶

Regardless of the precise historical moment that Universities began to think of themselves as collections of specialists who bolted particular pieces of knowledge on to each young scholar as he or she rolled through their particular shops (classes), leaving the rest of the job to other specialists, students now still routinely internalize this set of assumptions, frequently showing great resistance to reading, watching, listening to, or learning anything on which they will not be tested, anything that will not demonstrate their acquisition of the particular narrow expertise associated with the particular course.

The concept of Simonides, by contrast, is integrative across both disciplines and time. When it is fully converted to a Sakai 3 platform, all students will have a dashboard page from which they can pass with equal facility between their portfolio space, their academic networking page, their course sites, and the private areas in which they may stockpile files and author content for export to the other locations. Students will thus build their portfolios in active conjunction with their ongoing course work and networking activities; indeed, Simonides re-imagines the portfolio not as the distillation of what students have achieved in otherwise separate courses, but as an ongoing interweaving of and commentary on the various strands of their education. Rather than attempting to summarize four years of education in an exit exam or a static assembly of some arbitrary number of completed assignments, the Simonides Memory Palace allows students to configure and reconfigure a portfolio space that preserves their changing understanding of the bigger picture that their individual learning experiences comprise.

Further, instructors and advisors may engage in discussion with students at every level of the portfolio, initiating a dialogue on anything from the selection of essay topics to the way a student organizes tags to cut across traditional disciplinary lines. Because the content students choose to include in their portfolios is not dictated

⁵ See the College Board's website at <http://www.collegeboard.com/faithfulmirror/merit/whoeduc.html>

⁶ See, for instance, the talk Robinson gives at http://www.ted.com/talks/ken_robinson_says_schools_kill_creativity.html

administratively, the Memory Palace can manifest all the educational experiences formerly inaccessible to or cordoned off from academic consideration. Files related to work experiences, co-curricular events, travel, or other meaningful occasions might be classed with germane passages from the *Bhagavad Gita*, screen captures from *Metropolis*, and a journal entry for a class, reflecting in virtual space the way such entities intertwine in the student's own mind.

The networking features will allow interest groups to form across student/faculty lines, bringing pedagogy and scholarship into closer connection; a student working on Sartre, for instance, might search for other students who have both written on existentialism and studied at least one semester in Paris in order to exchange bibliographic information and images of sites important in Sartre's life. Indeed, we have already found that online digital technology dissolves many of the assumptions on which traditional pedagogy was founded, such as the unchallenged primacy of the formal essay as a means for students to demonstrate their understanding of a subject. Formerly impractical combinations of text, image, and sound (whether spoken word or music) extend the range of discourse in ways that are far more closely analogous to cultural experience (particularly of contemporary students) than analysis conducted in the written word alone.

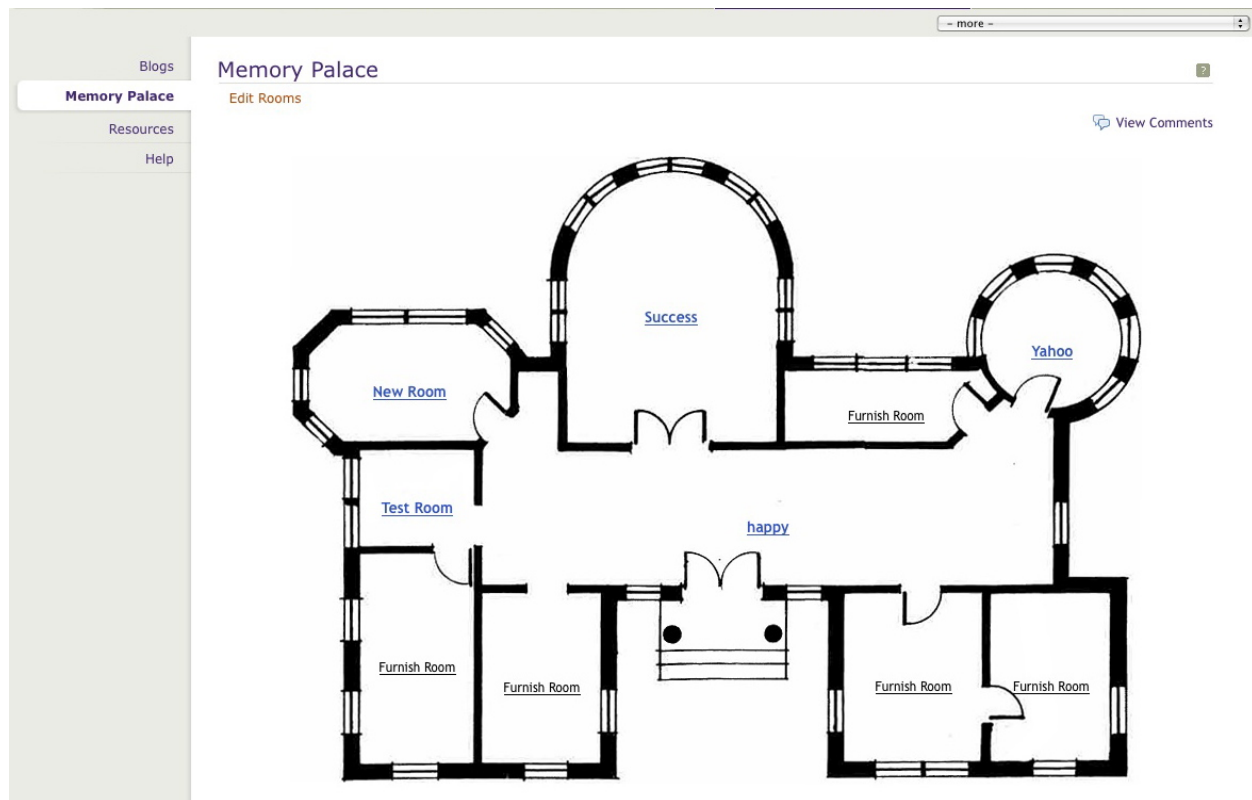
The Simonides Memory Palace in Pilot

We made several crucial, mutually dependent decisions during the 08-09 Simonides development cycle. The most important was to plan all development with an eye to the future; specifically, the advent of Sakai 3, the next generation Sakai codebase, planned for release in summer 2009. Sakai 3 promised to offer far more powerful content-authoring functionalities than we could produce on our own; at the same time, abandoning an OSP foundation meant greater effort needed to be devoted to creating the Memory Palace portfolio tool. We therefore chose to build our portfolio on a Sakai 2.6 platform, but to integrate it with a Xythos repository; this suited it not only for easy compatibility with the NYU file-storage system, but it also promised simpler conversion of the tool to the JCR-based Sakai 3 file-storage system. At the same time, we included just enough networking features so that our pilot could test their pedagogical capacities while not duplicating work that was already being done on a larger scale for Sakai 3's robust academic networking structure. Drs. Appert, Squillace, and Washburn concentrated on piloting the Memory Palace, while Mr. Kain, Ms. King, and Drs. Fulani, Hatcher, and Reichert worked outside the Sakai system to explore the pedagogical applications of future Sakai 3 functionalities with the 2.6 blog tool or with tools from outside the system.⁷

⁷ The blog and networking pilots will not substantially carry forward into Sakai 3, so the student work done for them was not preserved; the White Paper therefore concentrates on the Memory Palace function.

The Simonides Memory Palace pilot we conducted in the spring of 2008 fully bore out our assumptions about the potential for a dynamic portfolio to integrate formerly disparate elements of a student's educational experience. Students used the same tool to represent their educational experiences in such different ways that the diagnostic and assessment potentials of the tool were abundantly clear.

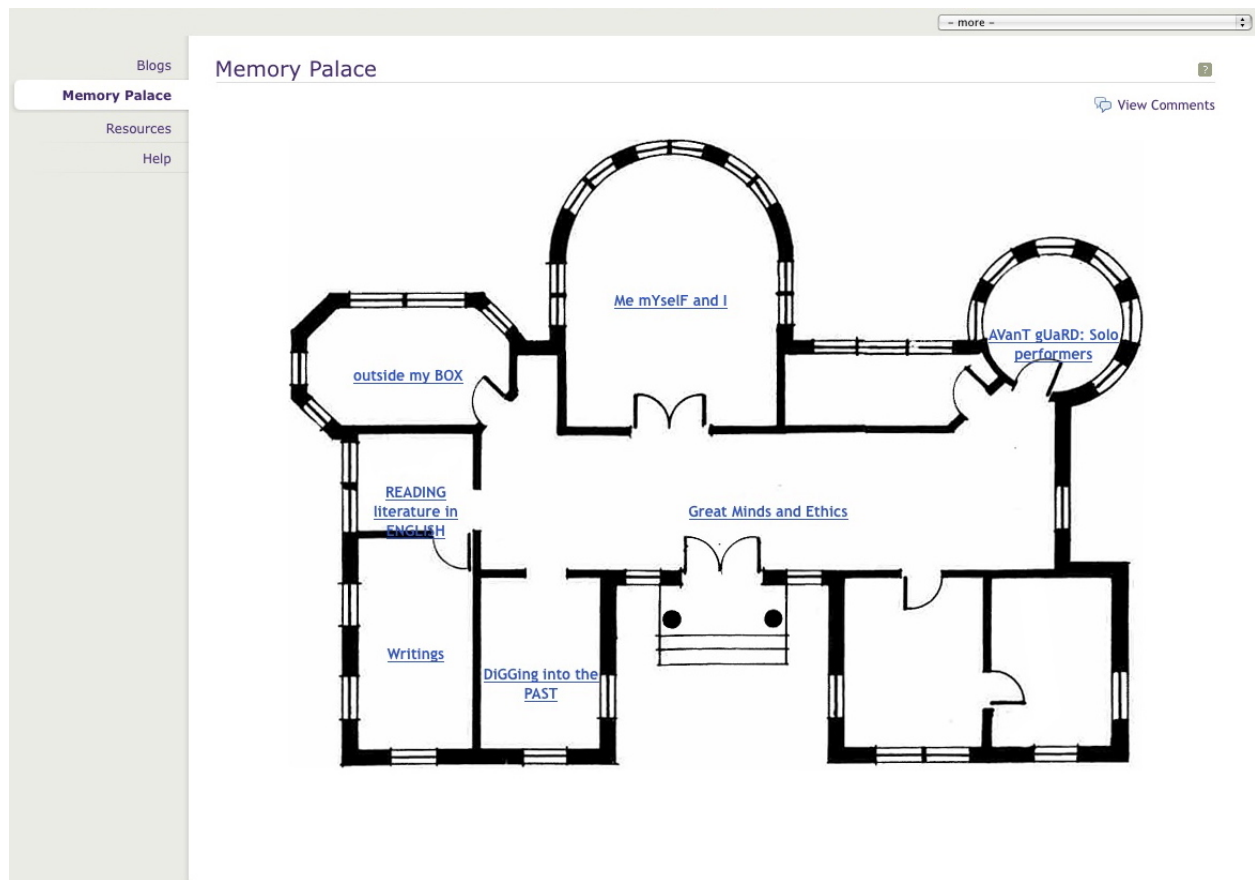
The Memory Palace lays out a student's portfolio space in the shape of an architectural floorplan – in part, a tribute to Simonides of Ceos, who developed the (imaginary) memory palace as a mnemonic device, a way to make the ephemeral memorable just as we make it virtual, but more importantly in order to impose the necessity for making taxonomic choices on students without imposing a specific taxonomic hierarchy on the content they uploaded. The asymmetrical arrangement of the floorplan would allow us to see at a glance what students considered peripheral and central to their experience, while the items grouped in a particular room would give us a sense of what boundaries they crossed and what boundaries they honored. (Although the Spring 2008 pilot included only one floorplan, future versions of Simonides will include a selection of potential layouts, including non-architectural schemas.) We were especially pleased that even the first year students who composed the pilot group configured their Memory Palaces as visual metaphors for the ways they categorized their experiences.



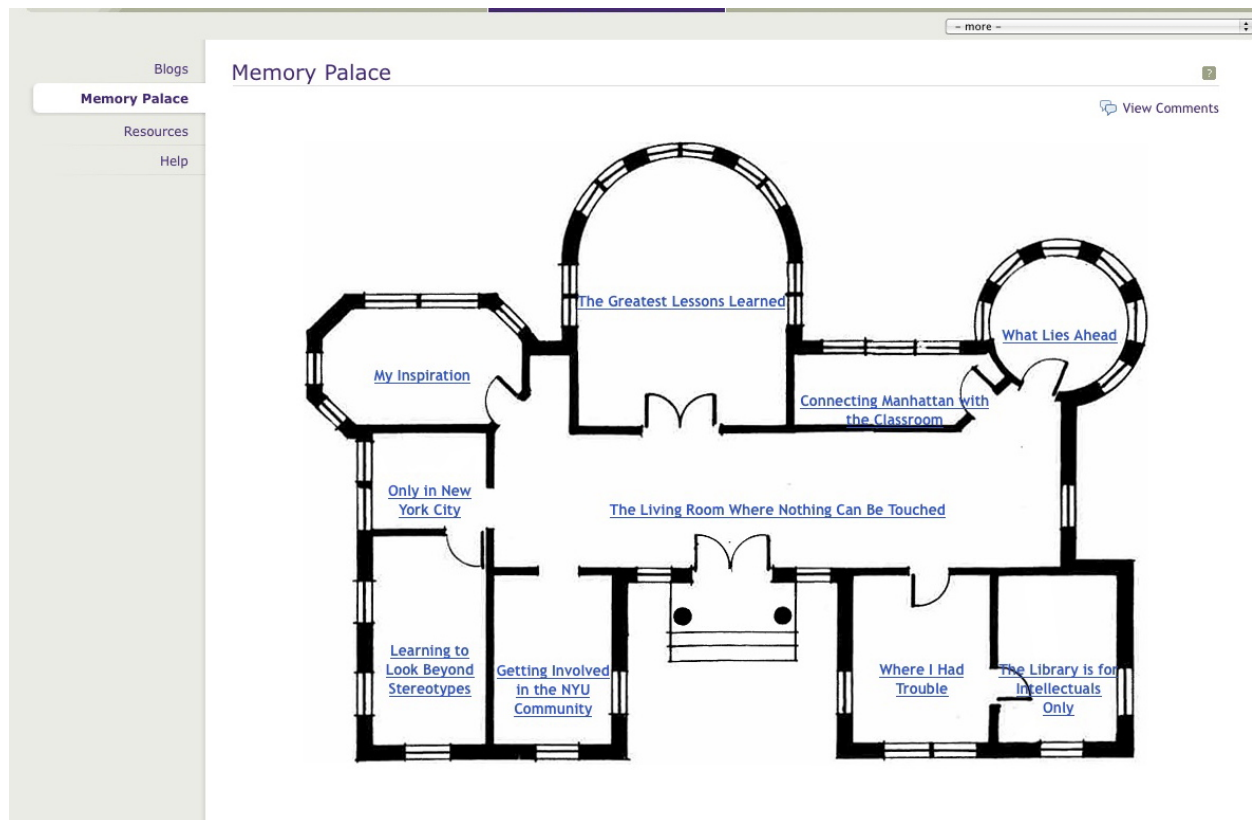
Here is the site user's view of a partially filled Memory Palace. The titled rooms have had content added to them; those titled "Furnish Room" are empty. To add content, one clicks on the room title to open the room file upload view (next slide). Users' choices of names can be quite revealing, as the students whose work is represented in later slides will show. The floorplan includes a variety of room sizes and shapes, as well as a complicated set of relations between rooms, providing an array of opportunities for users to model consciously or unconsciously the patterns of organization by which they make sense of their intellectual experiences. Having been made manifest in this way, taxonomies may then be contemplated, discussed, understood, and modified.

In the future, we plan to include a tag cloud as an alternate organizational image, one that is constructed as the result of individual tagging behaviors not in themselves performed in accordance with a conscious taxonomic plan. Comparison between the organization of the floorplan and the tag cloud would open fresh vistas on the multi-dimensional ways a user categorized an object, encouraging him or her to consider the contingent nature of classification. Indeed, we are presently at work designing a set of portfolio display choices to supplement the Memory Palace; our fundamental premise is not that all student work is best presented in terms of the particular visual metaphor of the Memory Palace, but that any portfolio system should allow content to be

displayed in multiple formats, the choice of format depending on the educational or professional purposes of the portfolio.



This student immediately grasped the possibility of using the plan as a visual metaphor for the relations between kinds of material (though the instructors were careful not to explicitly raise this option). Because this student's first language was not English, for instance, she placed the "Reading literature" and "Writings" rooms to reflect the idea that reading great English literature was her path to writing well in that language.



Students at the same level in the same class used the Memory Palace differently - one can see from a glance at the room titles in this Memory Palace, for instance, that the student was seeing college education through a haze of cliché (note especially the rooms on the top row).

[Blogs](#)

[Memory Palace](#)

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Memory Palace

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Only in New York City



Pictures of New York moments that caught my eye....only in New York would this happen.

Getting in the Groove of Things

View from my bedroom window

Obama or McCain?

The ice of America. Blue or red?

Click click. We are not in California anymore.

Jay-Z at the Knicks vs. Lakers Game

A slice of Manhattan

A bite out of the Big Apple

Hearing the Unexpected

A Conversation I Overheard Between Two NYU Security Guards

This is a room in the same student's Memory Palace. Particularly interesting is the cross-pollination of media, with images, texts, and (potentially) sound and video files connected in larger thematic categories. The comment feature is also included at the room and item level.

[Blogs](#)
Memory Palace
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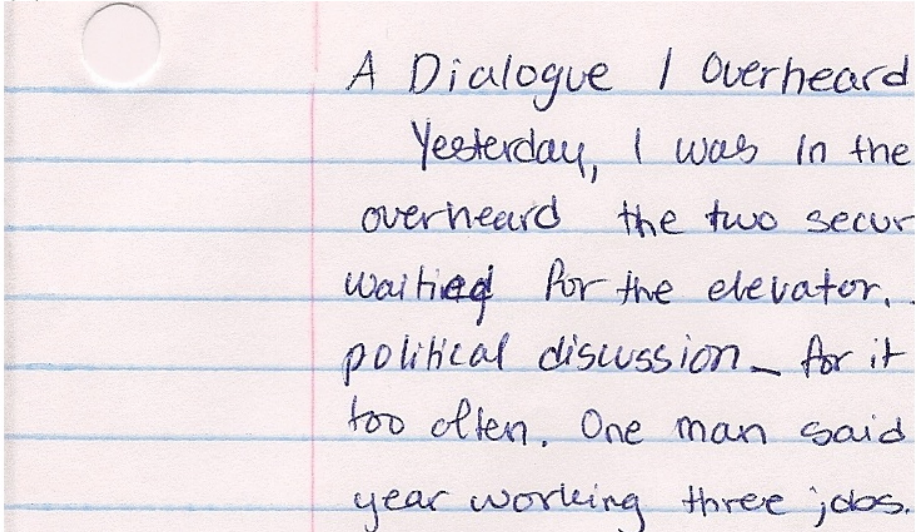
Memory Palace

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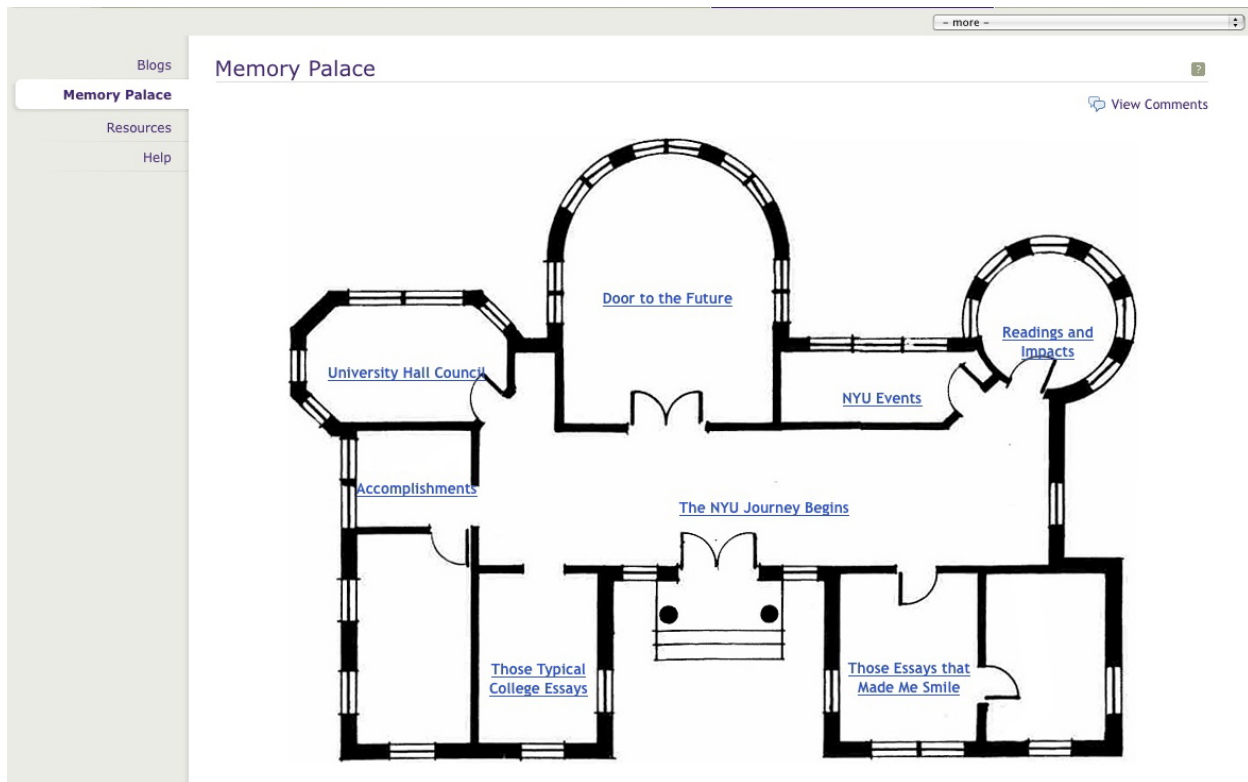
A Conversation I Overheard Between Two NYU Security Guards

Synopsis:

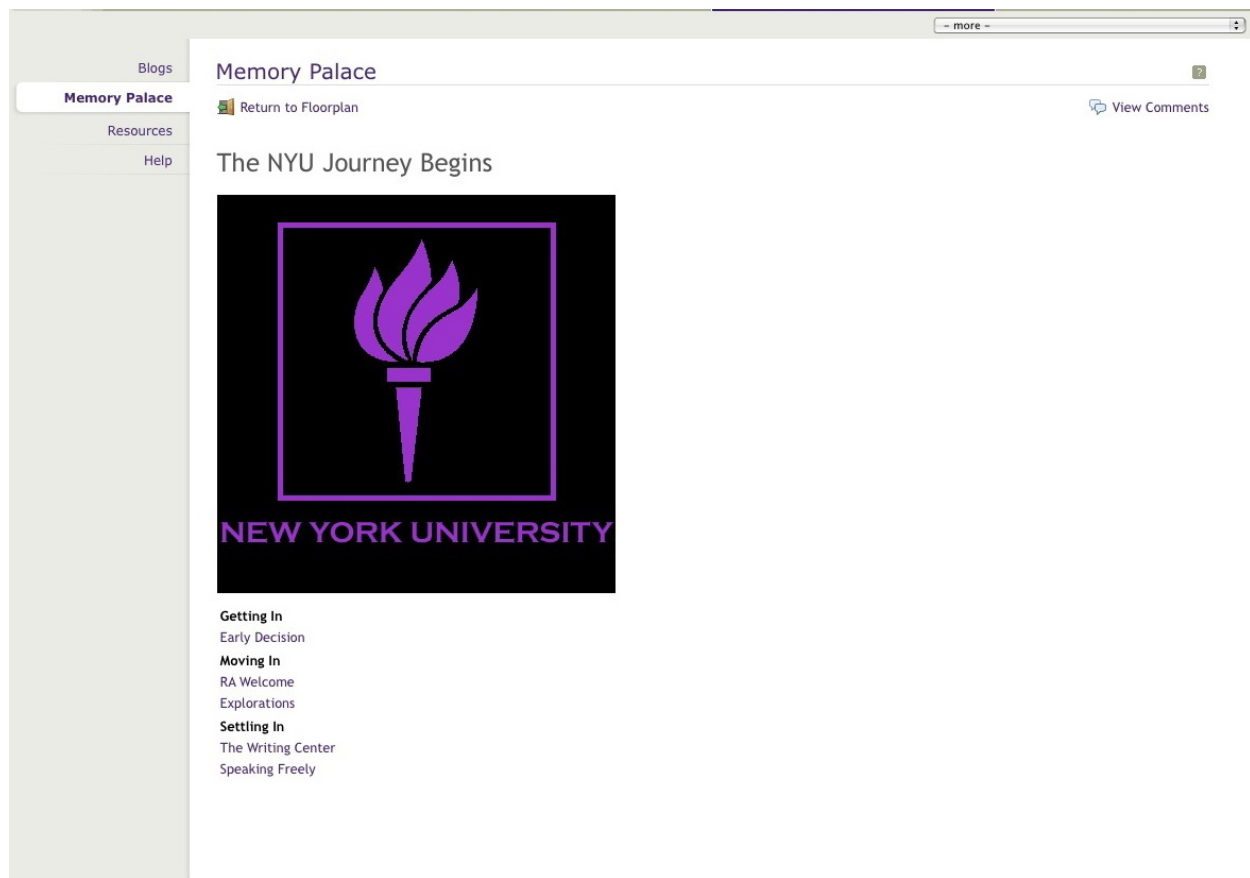
Synopsis



To our surprise and satisfaction, students began to scan and upload handwritten notes as pdfs - in this case, a piece of conversation between two security guards that the student had overheard. We found that the division between classwork and college life became delightfully permeable in the Memory Palaces our students created.



This student manifested her attitude toward college unmistakably; for her, the value of a college education was being in college itself. Note how “Readings and Impacts” is exiled to a turret on the periphery of the floorplan, while the minutiae of her admission to NYU occupies the spacious front hall.



In that spacious hall, she included material we would never have dreamed a student would find important enough to save, like her RA Welcome Letter. One can only have a student in class for 3 or 4 hours a week; the Memory Palace, being so free form, gave us insight into their preoccupations and developing thoughts during the 90-100 waking hours a week they were not in class.

We expect the Memory Palaces students create to grow all the richer when they can easily move material between courses, their networking pages, the content authoring space, and their portfolios.⁸ The ability to archive old arrangements as students reconfigure their portfolios over the four years of their undergraduate educations (and even beyond) will provide an unprecedented perspective on the ways they connect ideas across and outside their classes and on their cognitive development in the process.

In sum, the Simonides vision aims at producing a virtual environment in which students and instructors may explore the intellectual issues in open-ended dialogue, rather than a discrete tool set for accomplishing pre-determined ends. The ends of

⁸ Because all uploaded files are housed in a Xythos repository, moving them between locations merely involves linking to the resource, rather than copying it and occupying more and more memory space.

liberal education should not be confused with the means; tests, assignments, discrete skills and learning outcomes - even courses and majors - are all means by which to foster self-directed intellectual lives in an open intellectual community.

Process: SAWG: NYU's Sakai-Alex Working Group

Function Follows Form

As important as the code that grew out of the Simonides pilot is the process that was founded as its result.⁹ Just as the Simonides vision was to create an environment that would accommodate a variety of different pedagogical projects, so the Sakai-Alex Working Group (SAWG) that grew from it emphasizes community direction of an overarching technology initiative that serves many stakeholders, rather than a splintering of efforts between numerous, unrelated governing bodies run by many different interest groups in isolation from each other, each focusing only on the particular tool it wishes to develop.¹⁰ Contrary to the dictum attributed to Louis Sullivan, function follows form: the manner in which a project is directed will largely determine the scope and character of the functionalities it produces. The SAWG includes representatives from across NYU's pedagogical, scholarly, IT, and information communities, some of whom are faculty members, some of whom are librarians, some of whom are administrators, and some of whom are technology specialists. Meeting biweekly, they set the fundamental direction for NYU's development of Sakai 3. This model for reaching community decisions that are informed by a broad variety of perspectives, while requiring thoughtful negotiation, avoids both of the procedural paradigms that have undermined many technology projects: an academic division unilaterally driving the process so that the IT and information specialists are forced to develop a boutique tool that works only in the precise way the users were capable of envisioning (and which may be obsolete before it is even fully developed) or, conversely, IT and information specialists unilaterally driving the process so that faculty members are presented with a toolset in which they have little interest and insufficient investment to muster the patience to see the project through the inevitable bugs and growing pains, regarding anything that does not meet their immediate pedagogical and scholarly needs as a failure. The SAWG model ensures that the academics know what is technologically feasible and advisable from a university-wide standpoint and that the technology specialists know what happens in the classroom, library, and lab.

⁹ Code developed for this project is available at <https://source.sakaiproject.org/contrib/simonides/>

¹⁰ Alex is the NYU instance of Sakai.

What's more important, it allows a fruitful cross-fertilization of ideas, so that digital technology, pedagogy, and scholarship realize their potential to re-invent each other, rather than simply creating online versions of work processes previously conducted offline. Function follows form: working in digital networks changes the nature of the work itself. If the culture arising spontaneously among networked students is to continue the best traditions of humanistic practice, humanists need to help shape its future.

By spanning a variety of disciplinary areas, from Liberal Arts to Nursing to Sociology, the SAWG leadership team also ensures that our Learning Environment is developed in a way that accommodates the different learning styles particular to each, and finds the common ground between them. This prevents needless duplication of effort – rather than two areas that use, say, discussion tools in different ways developing two incompatible tools, each of which performs only the limited task demanded of it, the parties agree on a single, more versatile tool that can be configured to fit the needs of either group. In turn, such a tool is likely to be more adaptable to changing patterns of use than one that is designed to fit a narrow purpose.

Opening Open Source

The Sakai community faces a choice analogous to our own question of whether to pursue an individual development path, creating tools for the express use of the Liberal Studies Program, or to collaborate on the broader goal of building an environment that can accommodate a variety of uses and visions. Sakai 2.0 was developed to house a self-contained tool set that delivered in modular fashion the specific functionalities that specific users required for specific needs. Resources were housed in a repository built into Sakai itself, for instance, so that users could not include an image in a document they were composing unless they first uploaded it into their resource folders. Rather than providing a content-authoring palate flexible enough for creating syllabi as one of its multiple functions, the tendency was to build a syllabus tool that had little other application than to the making of syllabi.

Perhaps the best example of the tool-driven character of Sakai 2.0 is the Open-Source Portfolio system it incorporated. Originally designed to meet a particular University's need to demonstrate the achievement of particular learning goals,¹¹ OSP

¹¹ While Indiana University, the chief developer of OSP, laudably aims for a system in which, "the individual manages the work of portfolio in the Workspace," they immediately note that, "The workspace represents the portfolio owner's interaction experience with managed objects or artifacts." The articles are managed in that "The matrix enables students to upload documents that provide evidence of their learning with respect to each PUL [Principle of Undergraduate Learning] at each level of competency. When students are satisfied with the documents they have chosen to

never progressed beyond the fundamental limitations of its origin. While the matrices on which it is based could be configured to act as a series of locked gates through which students only passed as they accumulated the keys of a set of required “learning outcomes” or as a set of boxes for students to fill with the sort and number of materials that their program dictated they should upload, OSP lacked the flexibility to serve the needs of a program like ours that wanted to observe the sort of taxonomic decisions students themselves would make if allowed to do so, to let students, faculty members, and advisors engage in an ongoing dialogue on students’ work, or to allow students the creative freedom to make something no one had expected to see when the template was bolted into place.

Indeed, we had initially imagined using OSP as a base on which to build the Memory Palace, but soon recognized that the controlling metaphor on which it is based could not accommodate our portfolio concept. The OSP structure in effect provides a template over which the student has no meaningful control. We wanted a portfolio to foster self-directed learning – to be student-centered. We do not contend that the Memory Palace is superior to OSP for all conceivable uses; the point, rather, is that Sakai 3 needs to be developed in such a way as to accommodate the different sorts of pedagogical visions from which both OSP and the Memory Palace arose. It needs to provide, e. g., a means for tagging data so that it may be presented in any number of fashions, rather than developers thinking in terms of a restrictive presentation tool like OSP.

Technology has a notoriously short shelf-life. For colleges and universities to invest in open-source code like Sakai, they need a reasonable assurance that their product will not look obsolete in a year or two; moreover, it must be measured against the sophistication in appearance and ease of functionality that students come to expect from their use of commercial software, networking sites, wikis, and so forth. It seems to follow, then, that the Sakai community should concentrate on developing a flexible platform that can provide a sort of hub into which tools from many sources can be easily slotted. If an institution, say, determines that Independent Tool A will best meet their podcasting needs, Sakai would provide a means to deliver that tool easily; if, a few years later, Independent Tool B had moved into a clear lead, the tool could be replaced with a minimum of effort. Rather than being a tool set, Sakai would be a tool box: a

upload in each cell, they will be prompted to write a reflective essay that describes how the evidence demonstrates a particular level of competence with respect to one of the PULs.” One finds it hard to imagine the reflective essays produced under these circumstances could produce genuine reflection on the learning process.
(<http://www.nyu.edu/as/gsp/advising/facinfo/lobby/?page=mission&subpage=glssophomore>)

means to organize and house tools so as to get the right tools into the right hands at the right times.

IV. Conclusions: We Murder to Dissect

Michael Korcuska, at the time executive director of the Sakai Foundation, wrote in his blog:

The role of assessments is key to any attempt to reform the educational system. With the (fundamentally sound) calls for increased accountability, the role of assessments becomes increasingly important. Unfortunately, the "teaching to the test" phenomenon coupled with inadequate assessments will result in a system that is arguably worse than the one we have now. Assessment must be strengthened but it must, simultaneously, also be made more varied and complex. Increased use of rich assessments (e.g. essays, performance assessment, oral presentations, demonstrations, exhibitions, and portfolios) is a must.

<http://sakaiproject.org/blogs/michael-korcuska/technology-and-education-reform> Fri, 01/15/2010 - 4:42pm)

The goal of liberal arts education is to develop each student's capacity to lead a self-directed intellectual life. While there is great value in a program or department becoming more conscious of its learning goals by having to articulate them, assessing self-direction via rubrics that are transparent to students is problematic. One can't, for instance, use as a program rubric "students must demonstrate that they have on their own seen and understood a contemporary play by choosing to interpret it in light of its relation to a historical context of their choice," because then they aren't seeing it on their own nor are they choosing the mode of interpretation. This is a central dilemma for humanities education – there is a need to articulate specific learning goals for basic program assessment purposes, but at the same time these goals are all means to the greater end of promoting self-directed education, of producing an integrated individual rather than an agglomeration of discrete educational acquisitions, whether skills, facts, or paraphrased ideas. Even when sharing a syllabus with students, instructors need to be very careful that they don't confuse the means (success at what is demanded on paper A and presentation B) for the end (being able to fend for themselves educationally). It's an issue educators face constantly - the "what do I need to do to get an A?" question – and the best response is not to answer it, but to subvert the question.

Indeed, these principles apply to many "data-driven" fields as well. While students in a medical or nursing program must certainly demonstrate the mastery of particular factual material and particular means of interpreting data, the tendency in recent years has been to recognize the extent to which medical practitioners must treat

not merely the disease, but the patient. While one might be able to assess a practitioner's ability to administer the correct drug for a particular disease, one cannot so assess his or her ability to understand patients' cultural assumptions well enough to translate their descriptions of symptoms into a secure diagnosis. Assessment of interactions with the people a practitioner in any field treats, assessment of how they deal with unexpected situations that fall outside the scenarios with which they have been taught to cope, must take a more holistic form than checking off boxes in a list of essential skills.

We see great potential for using a flexible e-portfolio to develop substantially different and possibly far superior means of assessment. Rubrics are applied to the end product of learning on the assumption that the process of change that led to those final products, the growth of the student's mind, is not available itself for observation. But with a dynamic portfolio tool, one in which students do not merely stockpile the precise items the program prescribes but control the types of items they save and the manner in which they are presented, one might have a window into the development of each student's mind. In order to configure an open-ended portfolio, students need to practice taxonomy, placing items in categories that reflect the way they think about the relations between them. If such a portfolio is versioned and makes space for student reflection, it becomes possible to see how a student's way of thinking and modes of understanding develop (or fail to) over time; if such a portfolio is allowed to grow organically, the very sorts of items students choose to save and comment upon, the ways they choose to represent themselves, can tell a program a great deal about what is and is not having an influence on students over time, what is and is not sticking. In other words, a program can look directly at how a student's work has changed over his or her time at the University, see both what they produced and what they thought about it at a metacognitive level, and get a sense of the real difference what they teach is making. Educators have always wanted to see how students' ways of thinking change over time; it was just never practical in a world of discrete courses in which the work of one term was basically wiped clean to start the next. Now that the ephemeral can be made virtual, the development of the capacity to think independently can be captured in flight.